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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MOORE JR, MICHAEL J

ART UNIT PAPER NUMBER

2666

DATE MAILED: 05/24/2004

*[Handwritten mark]*

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/722,930

Applicant(s)

KELLY ET AL.

Examiner

Michael J. Moore, Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-141 is/are pending in the application.
- 4a) Of the above claim(s) 1-102 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 103-124 is/are allowed.
- 6) ☒ Claim(s) 125-141 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-141 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

In response to Applicant's response to restriction requirement submitted on 04/26/2004, claims 103-141 have been elected. Therefore, claims 1-102 have been withdrawn from further consideration. Applicant is requested to cancel non-elected claims 1-102.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) submitted on 03/26/2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the information disclosure statement.

### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 103***

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims **125, 126, and 137** are rejected under 35 U.S.C. 103(a) as being unpatentable over Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060).

Regarding claim **125**, Montpetit (U.S. 6,366,761) teaches a method of bandwidth allocation (load balancing) in a satellite data communication network in column 2, line 53 – column 3, line 24. Montpetit also teaches a bandwidth request message 114 of Figure 5 that is generated and transmitted to a bandwidth allocation processing unit (control station). This bandwidth request message requests allocation of an amount of bandwidth to a ground terminal for uplink transmission (return channel bandwidth) of one or more data packets as described in the abstract. Montpetit also teaches a bandwidth allocation response 118 (channel allocation message) in Figure 5 reported to

the ground terminal that indicates allocated bandwidth (return channel bandwidth).

Montpetit also teaches transmitting a data packet (user message) to a satellite using the allocated bandwidth (in accordance with the channel allocation message) in step 110 of Figure 5.

Montpetit fails to teach an uplink message that includes a backlog indicator. However, Montpetit (US 2002/0150060) teaches a congestion bit 93 (backlog indicator) in Figure 7 that is included in a data packet (uplink message). At the time of the invention, it would have been obvious to someone of ordinary skill in the art given these references to combine the teachings of Montpetit (U.S. 6,366,761) with the congestion indicator of Montpetit (US 2002/0150060). A motivation for doing so would be to track the congestion status of routing paths in the communication system as stated in page 4, paragraph 36 of Montpetit (US 2002/0150060).

Regarding claim **126**, Montpetit (U.S. 6,366,761) further teaches the allocation of an uplink communication frequency in column 4, lines 37-40.

Regarding claim **137**, Montpetit further teaches transmitting a data packet (user message) to a satellite using allocated bandwidth (smaller than a predetermined threshold size) in step 110 of Figure 5.

6. Claims **127-136 and 138-141** are rejected under 35 U.S.C. 103(a) as being unpatentable over Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) and in further view of Dutta (U.S. 5,898,681).

Regarding claim **127**, Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) fails to teach changing an uplink frequency from a first frequency to a

second frequency. However, Dutta teaches a load balancing method whereby mobile terminals are redistributed among several channel groups in column 3, line 23 – column 4, line 35. Dutta also teaches on these lines that each return channel of these channel groups operate in separate, distinct frequency bands. At the time of the invention, it would have been obvious to someone of ordinary skill in the art given these references to combine the teachings of Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) with the frequency change of Dutta. A motivation for doing so would be to balance the load of channel groups as described in column 3, lines 22-25.

Regarding claim **128**, Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) fails to teach changing an uplink frequency from a first frequency to a second frequency in order to balance a traffic load between groups of return channels. However, Dutta teaches a method of balancing loads on channel groups with respect to other channel groups in column 3, lines 22-25. At the time of the invention, it would have been obvious to someone of ordinary skill in the art given these references to combine the teachings of Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) with the frequency change of Dutta. A motivation for doing so would be to balance the load of channel groups as described in column 3, lines 22-25.

Regarding claim **129**, Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) fails to teach where the uplink frequency is changed based on a group load factor. However, Dutta teaches a channel group congestion factor (CGCF) 360 in Figure 3 that is used by mobile stations to determine when to move to a different channel group (change uplink frequency). At the time of the invention, it would have

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been obvious to someone of ordinary skill in the art given these references to combine the teachings of Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) with the channel group congestion factor of Dutta. A motivation for doing so would be to balance the load of channel groups as described in column 3, lines 22-25.

Regarding claims **130 and 131**, Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) fails to teach where the first and second frequencies are assigned to a first return channel group or a first and a second channel group, respectively. However, Dutta teaches a plurality of channel groups where each return channel of these groups operates within its own distinct frequency band. At the time of the invention, it would have been obvious to someone of ordinary skill in the art given these references to combine the teachings of Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) with the mobile station redistribution among channel groups of Dutta. A motivation for doing so would be to balance the load of channel groups as described in column 3, lines 22-25.

Regarding claim **132, 134 and 135**, Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) fails to teach frequency hopping an uplink frequency between a predetermined number of uplink frequencies in accordance with a dynamic system traffic load. However, Dutta teaches a load balancing method whereby mobile terminals are redistributed (frequency hopping) among several channel groups in column 3, line 23 – column 4, line 35. Dutta also teaches on these lines that each return channel of these channel groups operate in separate, distinct frequency bands (predetermined number of uplink frequencies). Dutta also teaches a channel group

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congestion factor (CGCF) 360 (dynamic system traffic load) in Figure 3 that is used by mobile stations to determine when to move to a different channel group (change uplink frequency). At the time of the invention, it would have been obvious to someone of ordinary skill in the art given these references to combine the teachings of Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) with the frequency change method of Dutta. A motivation for doing so would be to balance the load of channel groups as described in column 3, lines 22-25.

Regarding claim **133**, Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) further teaches a congestion bit 93 (backlog indicator) in Figure 7 that is included in data packets (uplink messages) that are transmitted between a plurality of terminals (remote users) and satellites within the data communication system.

Regarding claim **136 and 140**, Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) fails to teach transmitting an ALOHA burst transmission from the remote user on an ALOHA channel. However, Dutta teaches contention-based signaling over return channels where the "slotted ALOHA" contention resolution protocol is used in column 8, lines 25-32. At the time of the invention, it would have been obvious to someone of ordinary skill in the art given these references to combine the teachings of Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) with the slotted ALOHA method of Dutta. A motivation for doing so would be to use a known contention resolution protocol to balance the load of channel groups as described in column 3, lines 22-25.



Regarding claim **138**, Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) fails to teach where a portion of available return channels are ALOHA-burst return channels. However, Dutta teaches contention-based signaling over return channels where the "slotted ALOHA" contention resolution protocol is used in column 8, lines 25-32. At the time of the invention, it would have been obvious to someone of ordinary skill in the art given these references to combine the teachings of Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) with the slotted ALOHA method of Dutta. A motivation for doing so would be to use a known contention resolution protocol to balance the load of channel groups as described in column 3, lines 22-25.

Regarding claim **139**, Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) fails to teach where the control station periodically transmits a group load factor for each of the groups of return channels. However, Dutta teaches a channel group congestion factor (CGCF) 360 in Figure 3 that is periodically transmitted by a Land Earth Station (LES) as described in column 13, lines 35-40. At the time of the invention, it would have been obvious to someone of ordinary skill in the art given these references to combine the teachings of Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) with the channel group congestion factor of Dutta. A motivation for doing so would be to balance the load of channel groups as described in column 3, lines 22-25.

Regarding claim **141**, Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) fails to teach where the remote user selects the return channel from one

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of the groups of return channels by using a random weighting factor based on a system traffic load. However, Dutta teaches a channel group congestion factor (CGCF) 360 (random weighting factor based on system traffic load) in Figure 3 that is used by mobile stations to determine when to move to a different channel group (change uplink frequency). At the time of the invention, it would have been obvious to someone of ordinary skill in the art given these references to combine the teachings of Montpetit (U.S. 6,366,761) in view of Montpetit (US 2002/0150060) with the channel group congestion factor of Dutta. A motivation for doing so would be to balance the load of channel groups as described in column 3, lines 22-25.

***Allowable Subject Matter***

7. Claims **103-124** are allowed.
8. The following is an examiner's statement of reasons for allowance:

Regarding claim **103**, the prior art of record teaches "a communication system for balancing traffic on a plurality of return channels". The prior art of record also teaches "a control station to transmit a broadcast signal to a remote user". The prior art of record fails to teach, "said broadcast signal including a non-real time frame marker, a timing message, and a return channel control message". The prior art of record also fails to teach "a receiver at the remote user to receive the broadcast signal and determine a return channel frame start time using the non-real time frame marker and the timing message". The prior art of record also fails to teach "a transmitter at the remote user to uplink a user message on one return channel of the plurality of return channels during a predetermined period after the return channel frame start time,

wherein an uplink frequency of said one return channel is determined by the return channel control message".

Regarding claims **104-124**, these claims are further limiting to claim **103** and are thus also allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Movshovich et al. (U.S. 6,463,059), Haugli et al. (U.S. 6,522,638), Dutta (U.S. 6,463,040), Macridis et al. (US 2003/0032429), Kronz (U.S. 6,577,610), Reichman et al. (U.S. 6,535,716), and Heath (U.S. 5,638,374) are all references that contain material pertinent to this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Moore, Jr. whose telephone number is (703) 305-8703. The examiner can normally be reached on Monday-Friday (8:30am - 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached at (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael J. Moore, Jr.  
Examiner  
Art Unit 2666

mjm MM

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